Amendments to the Claims:

1. (Currently amended) A process of controlling expression of a plastome-encoded sequence of interest in a plant or in plant cells, ~~by~~ comprising externally applying to said plant or to said plant cells a control signal selected from the group consisting of

(a) a physical signal ~~or~~ and

(b) a chemical signal or a source thereof,

wherein said control signal is adapted for an interaction of said physical or said chemical signal with an intra-plastid component of the plastid protein expression machinery and wherein expression of said sequence of interest is controlled by said interaction.

2. (Original) The process according to claim 1, wherein said plant or said plant cells contain in the plastid genome a recombinant nucleic acid comprising said sequence of interest and operably linked thereto a heterologous transcription regulatory sequence.

3. (Currently amended) The process according to claim 1 ~~or 2~~, wherein said component of the plastid protein expression machinery is an intra-plastid regulatory protein.

4. (Original) The process according to claim 3, wherein said regulatory protein is capable of changing its affinity to said transcription regulatory sequence in response to said chemical or physical signal.

5. (Currently amended) The process according to claim 3 ~~or 4~~, wherein said regulatory protein is encoded by said recombinant nucleic acid or by a further recombinant nucleic acid integrated into said plastid genome.

6. (Currently amended) The process of ~~one of claims 1 to 5~~, claim 1, wherein said control signal is a chemical signal or a source thereof, preferably said control signal is a non-proteinaceous chemical signal or a source therefore.

7. (Currently amended) The process according to ~~any one of claims 3 to 5~~ claim 3, wherein said chemical signal is lactose or a lactose analog, said regulatory protein is the lac repressor, and said transcription regulatory sequence is or contains the lac operator.

8. (Currently amended) The process according to ~~any one of claims 3 to 5~~ claim 3, wherein said chemical signal is tetracycline or a tetracycline analog, said regulatory protein is the tet repressor, and said transcription regulatory sequence is or contains the tet operator.

9. (Currently amended) The process according to claim 1 ~~or 2~~, wherein said intra-plastid component of the plastid protein expression machinery is a, preferably heterologous, transcription regulatory sequence that is operably linked to said sequence of interest.

10. (Currently amended) The process according to claim 2 ~~or 9~~, wherein said control signal is a non-protein chemical signal or a source thereof.

11. (Currently amended) The process of claim 2 ~~or 9~~, wherein said control signal is a signal protein or a nucleic acid as a source of said signal protein, said signal protein being capable of interacting with said transcription regulatory sequence.

12. (Original) The process according to claim 11, wherein said signal protein is the T7 polymerase.

13. (Currently amended) The process according to claim 11 ~~or 12~~, wherein said signal protein comprises a transit peptide for entering of said signal protein into plastids.

14. (Currently amended) The process according to ~~any one of claims 11 to 13~~ claim 11, wherein said nucleic acid is an RNA viral vector that is externally applied to said plant or to said plant cells.

15. (Currently amended) The process according to ~~any one of claims 11 to 14~~ claim 11, wherein said nucleic acid is applied to said plant or to said plant cells Agrobacterium-mediated or by leaf infiltration.

16. (Currently amended) The process according to ~~any one of claims 11 to 13~~ claim 11, wherein said signal protein is externally applied to said plant or to said plant cells via a phytopathogen like *Agrobacterium*.

17. (Currently amended) The process according to ~~any one of claims 11 to 16~~ claim 11, wherein said signal protein comprises a membrane translocation sequence enabling the direct introduction of said signal protein into cells of said plant.

18. (Currently amended) The process according to ~~any one of claims 9 to 17~~ claim 9, wherein said intra-plastid component is a promoter that is operably linked to said sequence of interest and said chemical signal is capable of interacting with said promoter.

19. (Currently amended) The process according to ~~any one of claims 9 to 17~~ claim 9, wherein said intra-plastid component is an operator that is operably linked to said sequence of interest and said chemical signal is capable of interacting with said operator.

20. (Original) The process according to claim 1, wherein said plant or said plant cells contain in the plastid genome a recombinant nucleic acid, said recombinant nucleic acid

(i) comprises said sequence of interest and

(ii) codes for a translation regulatory RNA operably linked to said sequence of interest,

said translation regulatory RNA being adapted for interaction with said chemical signal, whereby translation of said sequence of interest is controlled by said interaction.

21. (Original) The process according to claim 20, wherein said translation regulatory sequence comprises an RNA aptamer being adapted for binding said chemical signal.

22. (Original) The process according to claim 1, wherein said plant or said plant cells contain in the plastid genome a recombinant nucleic acid, said recombinant nucleic acid

(i) comprises said sequence of interest and

(ii) codes for a translation regulatory RNA operably linked to said sequence of interest,

said translation regulatory RNA having a sequence segment complementary to a sequence segment of a trans-acting RNA, whereby the availability of said trans-acting RNA in plastids is controllable by an interaction of said control signal with an intra-plastid component of the plastid protein expression machinery.

23. (Original) The process according to claim 22, wherein said translation regulatory RNA has a self-complementarity near its ribosome binding site for enabling formation of a stem-loop structure involving said ribosome binding site in the absence of said trans-acting RNA, whereby translation of said sequence of interest can be prevented in the absence of said trans-acting RNA; and whereby translation of said sequence of interest is induced by inducing transcription of said trans-acting RNA by externally applying said chemical signal to said plant or to said plant cells.

24. (Currently amended) The process according to claim 22 ~~or 23~~, wherein transcription of said trans-acting RNA is controlled ~~as defined in any one of claims 1 to 19.~~ by a process comprising externally applying to said plant or to said plant cells a control signal selected from the group consisting of

a. a physical signal and

b. a chemical signal or a source thereof,

wherein said control signal is adapted for an interaction of said physical or said chemical signal with an intra-plastid component of the plastid protein expression machinery and wherein expression of said sequence of interest is controlled by said interaction.

25. (Currently amended) The process according to ~~any one of claims 22 to 24~~ claim 22, wherein the transcription of said sequence of interest and transcription of said trans-acting RNA is controlled by the same externally applied control signal.

26. (Currently amended) The process according to ~~any one of claims 1 to 25~~ claim 1, wherein said controlling is inducing expression of said sequence of interest.

27. (Currently amended) The process according to ~~any one of claims 1 to 25~~ claim 1, wherein said controlling is suppressing expression of said sequence of interest.

28. (Currently amended) The process according to ~~any one of claims 1 to 27~~ claim 1, wherein said process is carried out on an intact plant or after harvesting said plant or said plant cells.

29. (Currently amended) The process according to ~~any one of claims 1 to 5 or 9~~ claim 1, wherein said physical signal is altered light conditions or a temperature change.

30. (Currently amended) The process according to ~~any one of claims 1 to 29~~ claim 1, wherein said chemical signal is a proteinaceous signal or a source thereof; or a non-proteinaceous chemical signal or a source thereof.

31. (Currently amended) The process according to ~~any one of claims 1 to 30~~ claim 1, wherein said intra-plastid component is of prokaryotic origin.

32. (Currently amended) The process according to ~~any one of claims 1 to 6 or 9 to 19~~ claim 1, wherein said intra-plastid component is of bacteriophage origin.

33. (Currently amended) The process according to ~~one of claims 1 to 32~~ claim 1, wherein said sequence of interest is a heterologous sequence that codes for a heterologous protein or is a native plastid sequence that codes for a native plastid protein.

34. (Currently amended) The process according to ~~any one of claims 1 to 33~~ claim 1, wherein said intra-plastid component of the plastid protein expression machinery is an intra-plastid component involved in expression of said sequence of interest but not in expression of other plastid sequences.

35. (Currently amended) The process of ~~one of claims 1 to 34~~ claim 1, wherein said control signal is adapted for an interaction of said physical or said chemical signal with said intra-plastid component in that:

(i) said physical or said chemical signal is capable of entering into plastids when provided externally and

(ii) said physical or said chemical signal is capable of interacting with said intra-plastid component for controlling expression of said sequence of interest.

36. (Original) Plant or plant cells capable of controlled expression of a plastome-encoded sequence of interest, said plant or plant cells comprising or encoding a heterologous intra-plastid component of the plastid protein expression machinery, said component being

adapted for interacting with an externally provided chemical or physical signal such that expression of said sequence of interest can be controlled by said interaction.

37. (Original) The plant or plant cells according to claim 36, wherein said intra-plastid component is a component of the plastid expression machinery of said sequence of interest but not of other plastid sequences.

38. (Currently amended) The plant or plant cell according to claim 36 ~~or 37~~, wherein said heterologous intra-plastid component is of prokaryotic origin.

39. (Currently amended) The plant or plant cell according to claim 36 ~~to 38~~, wherein said heterologous intra-plastid component is a regulatory protein capable of changing its binding affinity to a regulatory sequence operably linked to said sequence of interest in response to said chemical or said physical signal.

40. (Currently amended) The plant or plant cell according to claim 38 ~~or 39~~, wherein said regulatory protein is the lac repressor or the tet repressor.

41. (Original) A process of producing a plant or plant cells transformed in their plastid genome with a sequence of interest, comprising transforming a plant or plant cells on their plastome with said sequence of interest and a heterologous nucleotide sequence being or encoding an intra-plastid component of the plastid protein expression machinery, whereby said intra-plastid component is adapted for interacting with an externally provided chemical or physical signal.

42. (Currently amended) A system for controlling expression of a sequence of interest in a transplastomic plant or in transplastomic plant cells, comprising the plant or plant cells according to ~~any one of claims 36 to 40~~ claim 36 and a chemical or physical control signal capable of entering into plastids when applied externally, said control signal being adapted for controlling expression of said sequence of interest in said plant or plant cells by interacting with said intra-plastid component.